ORDER NO. KMS9810323A1

ervice Manua

Simplified

DIGITAL PROPRIETARY TELEPHONE FOR DIGITAL SUPER HYBRID SYSTEM

KX-T743

White Version

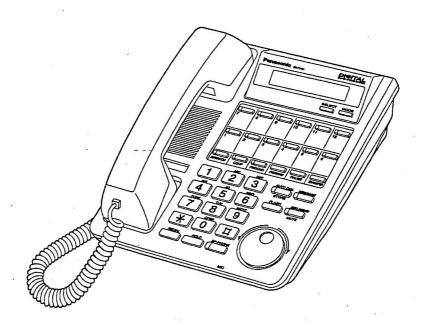
KX-T7431-I

Black Version

(for U.S.A.)

Please file and use this manual together with the service manual for Model No. KX-T7431C/KX-T7431C-B, order No. KMS9809310C1.

This service manual indicates the main differences between; Original KX-T7431C/KX-T7431C-B and KX-T7431/KX-T7431-B.



⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Panasonic

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PARTS COMPARISON TABLE (Change from original pages 39 ~ 41.)

Ref. No.	Pa	art No.	Part Name & Description	Pcs/	Remarks
i !	KX-T7431C/	KX-T7431/		set	Herriaik
	KX-T7431C-B	KX-T7431-B			
****	(Original)				
CABINET A	ND ELECTRICAL PA	RTS		<u></u>	
19	PSBX1053Z1	PSBX1053Z3	BUTTON, 18KEY (KX-7431)	1	
19	PSBX1053Z2	PSBX1053Z4	BUTTON, 18KEY (KX-7431-B)	1	
22	PQQT11166Z	********	LABEL, NOTE	0	Deletion
33	PSQT1309X	*************	LABEL, CAUTION (KX-T7431C)	Ó	Deletion
33	PSQT1309W		LABEL, CAUTION (KX-T7431C-B)	. 0	Deletion
		PSGT1563Z	NAME PLATE (KX-T7431)	1	Addition
		PSGT1609Z	NAME PLATE (KX-T7431-B)	1	Addition
ACCESSOR	IES AND PACKING N	MATERIALS			
		PSQX1525Z	INSTRUCTION BOOK	1	Addition
P1	PSPK1363Z	PSPK1389Z	GIFT BOX (KX-T7431)	1	
P1	PSPK1417Z	PSPK1428Z	GIFT BOX (KX-T7431-B)	1	
MAIN BOAF	D PARTS				
PCB1	PSWP1T7431C	PSWP1T7431UK	MAIN BOARD ASS'Y (RTL)	1	
C36	PSCEV0JA470	PSCEV1HA100	CAPACITOR, 10µF	1	
C37, 42	PQCUV1C224KB	PQCUV1H473MD	CAPACITOR, 0.047µF	2	
C106	PQCUV1H152KB		CAPACITOR, 0.0015µF	0	Deletion
R22	ERJ3GEYJ820	ERJ3GEYJ470	RESISTOR, 47Ω	1	Dolodon
R63	ERJ3GEYJ223	ERJ3GEYJ153	RESISTOR, 15kΩ	1	······································
R65	ERJ3GEYJ104	ERJ3GEYJ393	RESISTOR, 39kΩ	11	
R92	ERJ3GEYJ152	ERJ3GEYJ272	RESISTOR, 2.7kΩ	1 1	
R94	ERJ3GEYJ471	ERJ3GEYJ122	RESISTOR, 1.2kΩ	1	
R118	ERJ3GEYJ103	4-4-0 u q 1-0-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1	RESISTOR, 10kΩ	1 1	Deletion
R515	ERJ3GEY0R00	ERJ3GEYJ123	RESISTOR, 12kΩ	1 1	30,01011
LCD BOARI	PARTS			<u> </u>	·
PCB2	PSWP2T7431G	PSWP2T7431UK	LCD BOARD ASS'Y (RTL)	1	
SWITCH BO	ARD PARTS			 -	
PCB3	PSWP3T7431C	PSWP3T7431UK	SWITCH BOARD ASS'Y (RTL)	11	

ORDER NO. KMS9809310C1

Service Manual

DIGITAL PROPRIETARY TELEPHONE FOR DIGITAL SUPER HYBRID SYSTEM

KX-T7431C

White Version

KX-T7431C-B

Black Version

(for Canada)



■ SPECIFICATIONS

Station Loop Limit:

40 ohms

Cabling Method:

2 pair wire

Jacks:

Main Unit, Handset/Headset, Telephone

Display:

16 digits (max.)

Dimensions:

208 (W)×105 (H)×232 (D) mm with handset

Weight:

960 g

Design and specifications are subject to change without notice.

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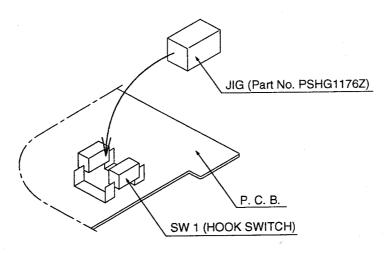
When you note the serial number, write down all of the 11 digits. The serial number may be found on the label affixed to the bottom of the unit.

TABLE OF CONTENTS

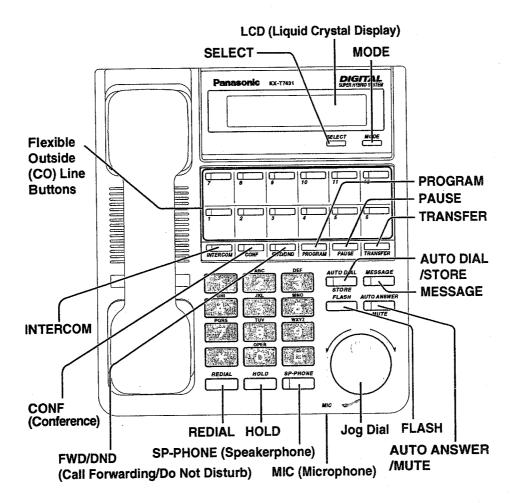
Page	Page
Page FOR SERVICE TECHNICIANS	HOW TO REPLACE THE FLAT PACKAGE IC
TROUBLESHOOTING GUIDE21	REPLACEMENT PARTS LIST39
TERMINAL GUIDE OF IC'S TRANSISTORS, AND DIODES 26	

FOR SERVICE TECHNICIANS

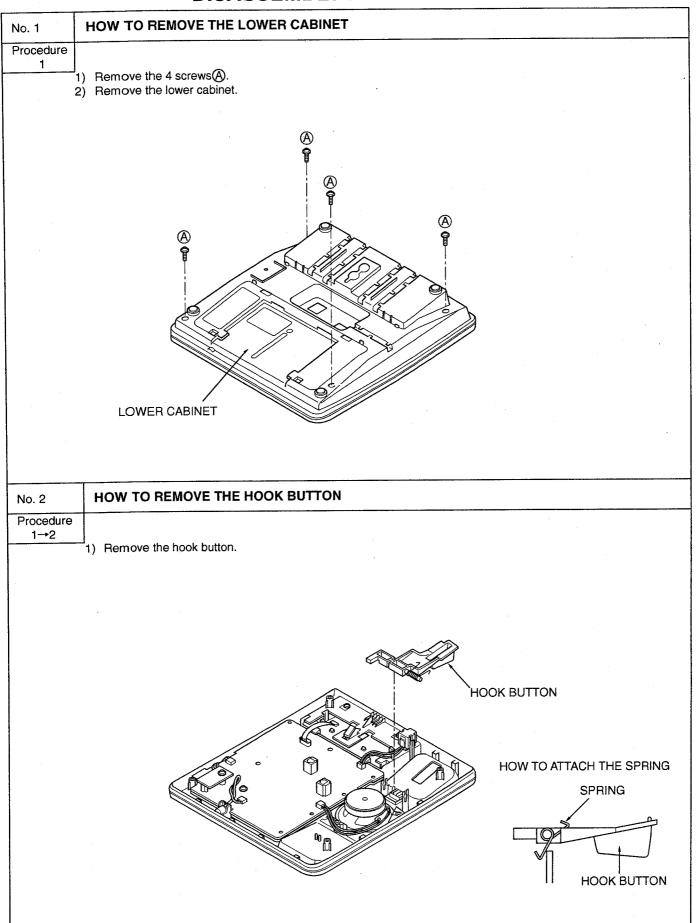
- 1. Note the following items when exchanging the LEDs (Ref. No. D100-117, 124-130) of Dial P.C. Board.
 - 1) Do not reuse a LED which is removed from the P.C. Board.
 - 2) Use a soldering iron (less than 15 W) for exchanging LED.
 - 3) Do not heat the LED for more than 2 seconds.
 - 4) Do not move the LED after soldering.
- 2. This unit employs the switch which is influenced by the light for the hook switch. When you open the cabinet to repair the unit in the bright light, the hook switch might work improperly. Therefore, take care not to shine the hook switch directly, or use the jig as shown below.

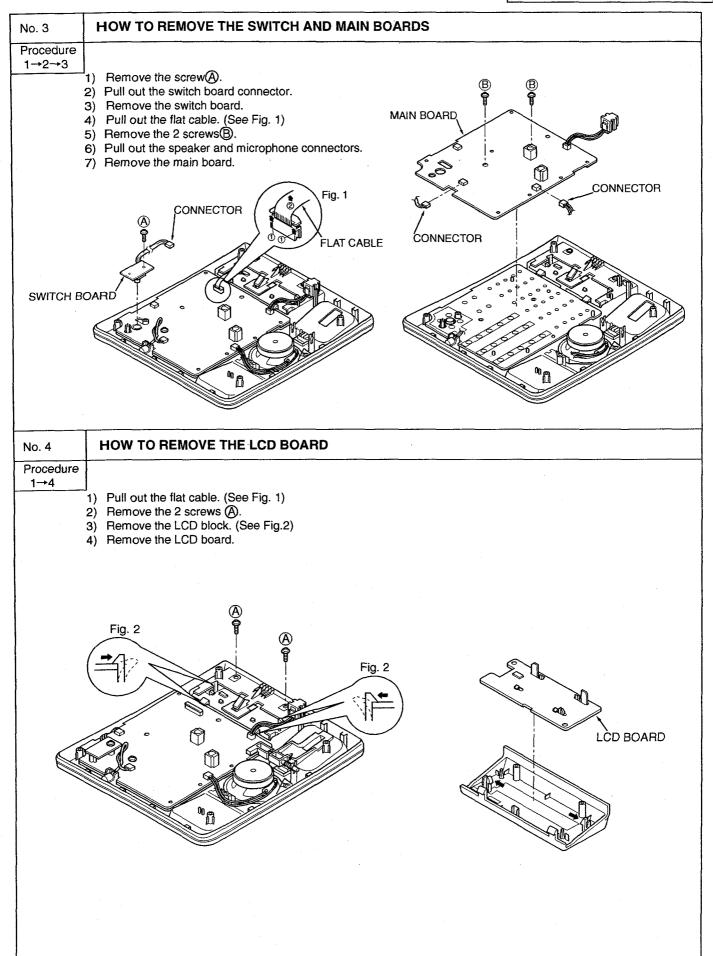


LOCATION OF CONTROLS



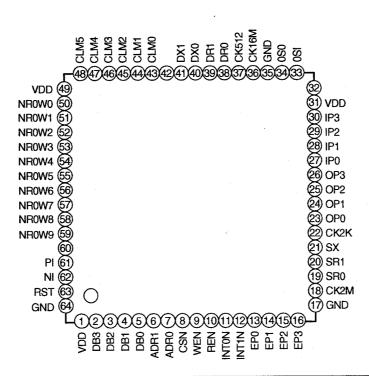
DISASSEMBLY INSTRUCTIONS





IC DATA

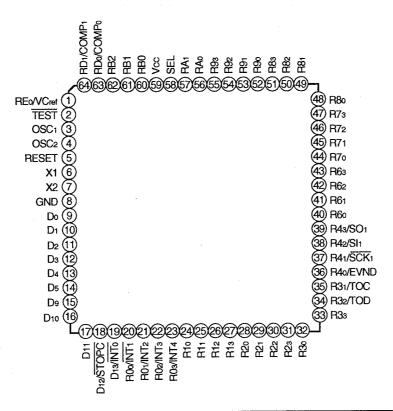
1. IC1



Name	Pin	Dir.	Pull Up	Туре	lo	Act.	Block	MHz	Descriptions
DB3	2	bidir	***	TTL	8.0mA	high	PT5B03	2.0	Data Bus [3]
DB2	3	bidir		TTL	8.0mA	high	PT5B03	2.0	Data Bus [2]
DB1	4	bidir		TTL	8.0mA	high	PT5B03	2.0	Data Bus [1]
DB0	5	bidir		TTL	8.0mA	high	PT5B03	2.0	Data Bus [0]
ADR1	6	input	12-38k	TTL		high	PT5D01U	2.0	Address Bus [1]
ADR0	7	input	12-38k	TTL		high	PT5D01U	2.0	Address Bus [0]
CSN	8	input		TTL		low	PT5D01	1.0	Chip Select
REN	10	input	12-38k	TTL		low	PT5D01U	2.0	Read Enable Command
WEN	9	input	12-38k	TTL		low	PT5D01U	2.0	Write Enable Command
RST	63	input		CMOS schmidt		high	PC5D21	0.01	Asynchronous Reset Input
INTON	11	output		CMOS	2.0mA	low	PC5O01	0.01	Interrupt Request
INT1N	12	output		CMOS	2.0mA	low	PC5O01	0.01	Interrupt Request
DRO	38	input		CMOS		low	PC5D01	0.6	Dpits Receive Data [1]
DR1	39	input		CMOS		low	PC5D01	0.6	Dpits Receive Data [0]
DX0	40	output		CMOS	4.0mA	low	PC5O02	0.6	Dpits Transmit Data [1]
DX1	41	output	*	CMOS	4.0mA	low	PC5O02	0.6	Dpits Transmit Data [0]
CK512K	37	output		CMOS	2.0mA	high	PC5O01	0.6	Dpits Bit Rate Clock
SR0	19	input	12-38k	TTL		high	PT5D01U	0.1	Serial Receive Data Stream [0]
SR1	20	input	12-38k	TTL		high	PT5D01U	0.1	Serial Receive Data Stream [1]
SX	21	output		CMOS	4.0mA	high	PC5O02	0.1	Serial Transmit Data Stream
CK2M	18	output		CMOS	4.0mA	high	PC5O02	2.1	Serial Stream Clock
EP0	13	output		CMOS	2.0mA	high	PC5O01	0.01	External Channel Pulse [0]
EP1	14	output		CMOS	2.0mA	high	PC5O01	0.01	External Channel Pulse [1]
EP2	15	output		CMOS	2.0mA	high	PC5O01	0.01	External Channel Pulse [2]

Name	Pin	Dir.	Pull Up	Туре	lo	Act.	Block	MHz	Descriptions
EP3	16	output		CMOS	2.0mA	high	PC5O01	0.01	External Channel Pulse [3]
PI	61	input		CMOS schmidt		high	PC5D21	0.01	Rotary Encoder Input [Pos]
NI	62	input		CMOS schmidt		high	PC5D21	0.01	Rotary Encoder Input [Neg]
CLMO	43	output		CMOS	4.0mA	high	PC5O02	0.01	LED Column Drive [0]
CLM1	44	output		CMOS	4.0mA	high	PC5O02	0.01	LED Column Drive [1]
CLM2	45	output		CMOS	4.0mA	high	PC5O02	0.01	LED Column Drive [2]
CLM3	46	output		CMOS	4.0mA	high	PC5O02	0.01	LED Column Drive [3]
CLM4	47	output		CMOS	4.0mA	high	PC5O02	0.01	LED Column Drive [4]
CLM5	48	output		CMOS	4.0mA	high	PC5O02	0.01	LED Column Drive [5]
NROW0	50	output		CMOS	4.0mA	low	PC5O02	0.01	LED Row Drive [0]
NROW1	51	output		CMOS	4.0mA	low	PC5O02	0.01	LED Row Drive [1]
NROW2	52	output		CMOS	4.0mA	low	PC5O02	0.01	LED Row Drive [2]
NROW3	53	output		CMOS	4.0mA	low	PC5O02	0.01	LED Row Drive [3]
NROW4	54	output		CMOS	4.0mA	low	PC5O02	0.01	LED Row Drive [4]
NROW5	55	output		CMOS	4.0mA	low	PC5O02	0.01	LED Row Drive [5]
NROW6	56	output		CMOS	4.0mA	low	PC5O02	0.01	LED Row Drive [6]
NROW7	57	output		CMOS	4.0mA	low	PC5O02	0.01	LED Row Drive [7]
NROW8	58	output		CMOS	4.0mA	low	PC5O02	0.01	LED Row Drive [8]
NROW9	59	output		CMOS	4.0mA	low	PC5O02	0.01	LED Row Drive [9]
IP0	27	input	12-38k	CMOS		high	PC5D01U	0.01	Input Port [0]
IP1	28	input	12-38k	CMOS		high	PC5D01U	0.01	Input Port [1]
IP2	29	input	12-38k	CMOS		high	PC5D01U	0.01	Input Port [2]
IP3	30	input	12-38k	CMOS		high	PC5D01U	0.01	Input Port [3]
OP0	23	output		CMOS	4.0mA	high	PC5O02	0.01	Output Port [0]
OP1	24	output		CMOS	4.0mA	high	PC5O02	0.01	Output Port [1]
OP2	25	output		CMOS	4.0mA	high	PC5O02	0.01	Output Port [2]
OP3	26	output		CMOS	4.0mA	high	PC5O02	0.01	Output Port [3]
CK2K	22	output		CMOS	4.0mA	high	PC5O02	0.20	2kHz Clock Output (duty 25%)
CK16M	36	output		CMOS	2.0mA	high	PC5O01	16.4	Master Clock Out
OSI	33	input		Analog			PC5X02	16.4	X'tal In (XIN)
oso	34	output		Analog			PC5X02	16.4	X'tal Out (XOUT)
N.C.	32								not used
N.C.	42			·····					not used
N.C.	60								not used
VDD1	1	vdd							Vdd (5V)
VDD2	31	vdd							Vdd (5V)
VDD3	49	vdd							Vdd (5V)
VSS1	17	vss							Vss (GND)
VSS2	35	vss							Vss (GND)
VSS3	64	vss							Vss (GND)

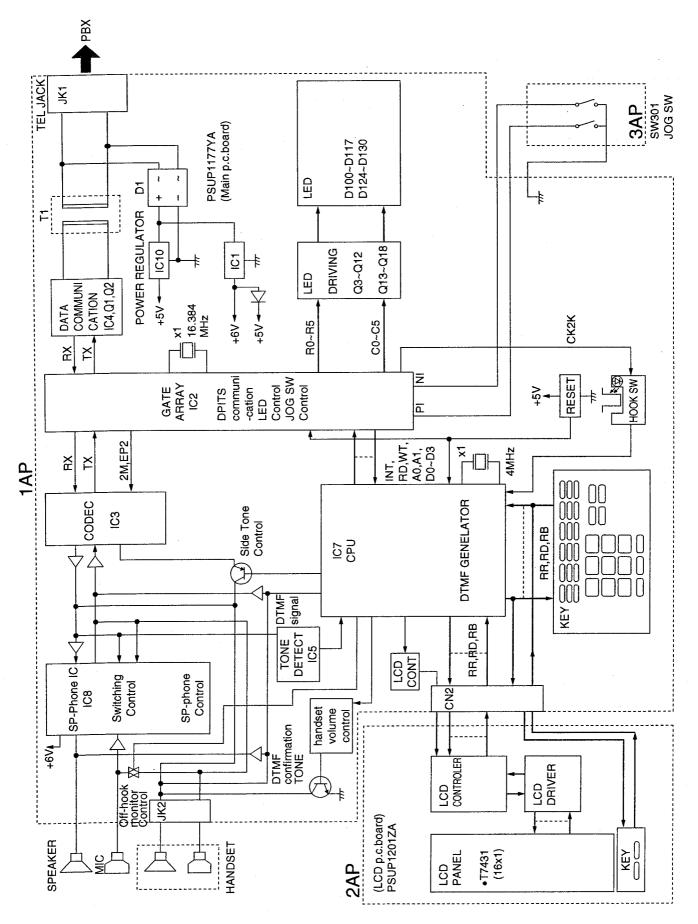
2. IC7



Classification	Terminal	Pin No.	Input/Output	Function
_	Vcc	59		Power supply terminal
Power supply	GND	8		Ground terminal
Test	TEST	2	Input	Not the user's terminal. Connect to the Vcc terminal.
Reset	RESET	5	Input	Reset terminal for MCU
	OSC1	3	Input	Input/output terminal to the main oscillator. Connect to the ceramic
Ossillation	OSC2	4	Output	oscillator, crystal oscillator, or external oscillation circuit.
Oscillation	X1	6	Input	Input/output terminal to the sub oscillator. Connect to the 32.768kHz
	X2	7 Output crystal oscillator. If not,		crystal oscillator. If not, fix X1 terminal to Vcc and open X2 terminal.
	D0~D5 D9~D11	9~17	Input/Output	Input/output terminal which is adressed every 1 bit. The terminals D0~D3 are the source large current input/output terminal, which supplies the current of max. 10mA to each terminal. The terminals D4, D5, D9~D11 are sink large current input/output terminal, which supplies the current of max.15mA to each terminal.
Port	D12, D13	18,19	Input	Input terminal which is adressed every 1 bit.
roit	R00,~R43 R60,~RA1	20~57	Input/Output	Input/output terminal which is adressed every 4 bit.
	RB0~2, RD0~1, RE0	60~64, 1	Input	Input terminal which is adressed every 4 bit.
Interrupt	INTo, INT1, INT2~ INT4	19~23	Input	Input terminal for external interrupt .

Classification	Terminal	Pin No.	Input/Output	Function
Stop clear	STOPC	18	Input	Input terminal used for the transfer from stop mode to active mode
	SCK ₁	37	Input/Output	Clock input/output terminal for serial interface.
Serial interface	Sl ₁	38	Input	RX data input terminal for serial interface.
Interiace	SO ₁	39	Output	TX data output terminal for serial interface.
T:	TOC, TOD	35, 34	Output	Timer output terminal.
Timer	EVND	36	input	Event input terminal.
Voltage	COMPo, COMP1	63, 64	Input	Analog input terminal for comparator.
comparator	VCref	1		Reference level voltage terminal for threshold voltage of analog input terminal.
Divide ratio selection	SEL	58	Input	The terminal which selects the divide ratio of system clock right after the reset and when returned to active mode from stop mode. Connect to Vcc voltage when selecting the divide-by-4, and connect to GND voltage when selecting the divide-by-32.

BLOCK DIAGRAM



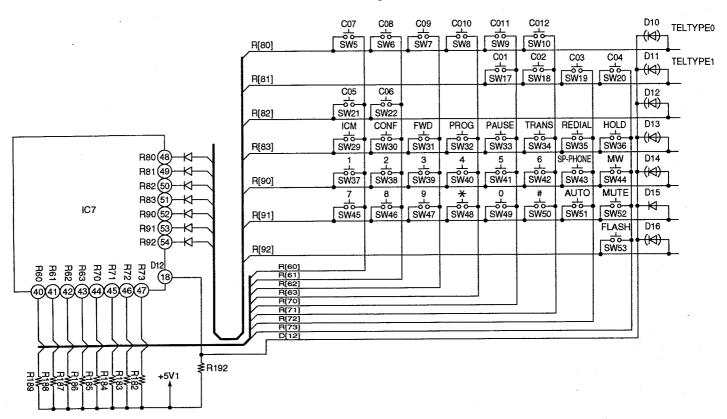
CIRCUIT OPERATIONS

1. KEY INPUT CONTROL CIRCUIT

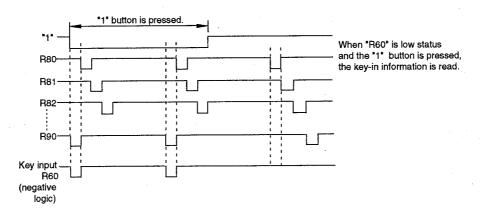
1) Circuit Operation

Sequential input information (negative logic) from the DSHS proprietary telephone is executed by dynamic scanning. The ports R80 to R83, R90, R91 and R92 of IC7 are brought to low status consecutively. If a key is pressed, the key-in information input is executed by ports R60 to R63 and R70 to R73.

Circuit Diagram



Key Input Control Timing Chart



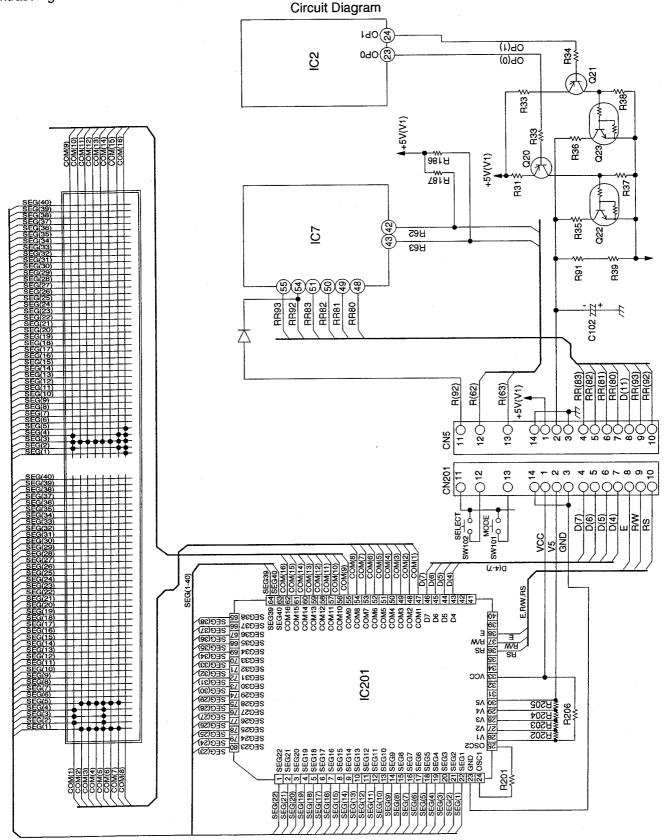
2. LCD CONTROL CIRCUIT

1) Circuit Operation

The LCD data is output from pins 48 to 55 of IC7.

LCD contrast adjustment is performed by the circuit composed of Q22, Q23, R91, R35 and R36.

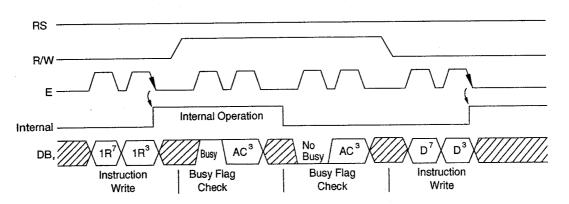
The contrast is determined only by the voltage level between V5 of IC201 and +5 V. Higher potential makes the contrast high.



LCD Contrast Control

CONTRAST	IC2 Pin 23	IC2 Pin 24
HIGH	Н	L
MIDDLE	L	Н
LOW	Н	Н

4-bit Data Transfer Timing Sequence



(Note) IR7, IR3 : Instruction 7th bit, 3rd bit
AC3 : Address Counter 3rd bit

3. LED CIRCUIT

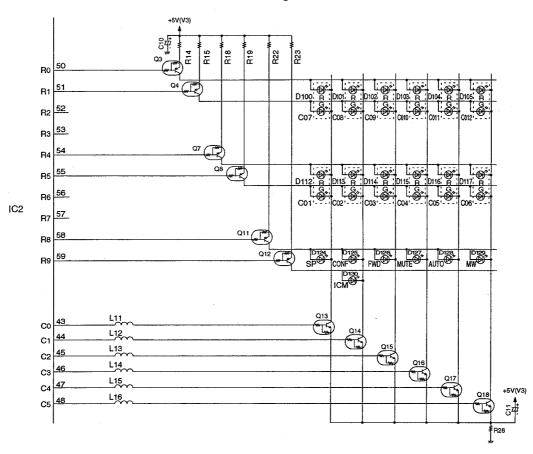
1) Circuit Operation

The LED executes dynamic lighting for the status indicators, and control is executed by the output ports C0 to C5 (column) and R0, R1, R4, R5, R8 and R9 (row) of IC2.

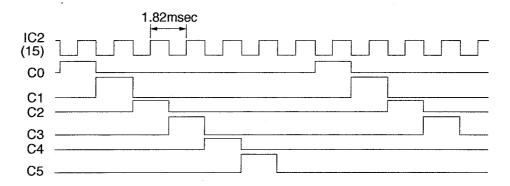
A fixed pulse (T=1.82 msec) is output continuously from IC2. This pulse is counted and the output of IC2 is shifted sequentially from CO to C5.

R0, R1, R4, R5, R8 and R9 of IC2 also output pulses, and the lighting of the LED is controlled by the timing of the output ports C0 to C5.

Circuit Diagram



Timing Chart



4. DATA COMMUNICATION CIRCUIT

1) Function

The data communication circuit serves the following functions: Information exchanger between the DSHS and DSHS proprietary telephone, key input information as well as data for the LED control, LCD control, etc. This information is continuously exchanged at all times.

2) Circuit Operation

When the DSHS proprietary telephone receives an IRQ signal from the DSHS and after sending the key input information to the DSHS and receiving data for the LED control, etc., the DSHS proprietary telephone will return to the DSHS an acknowledge signal.

3) Reception

The data from the EMSS is received via the H and L lines along the path shown below.

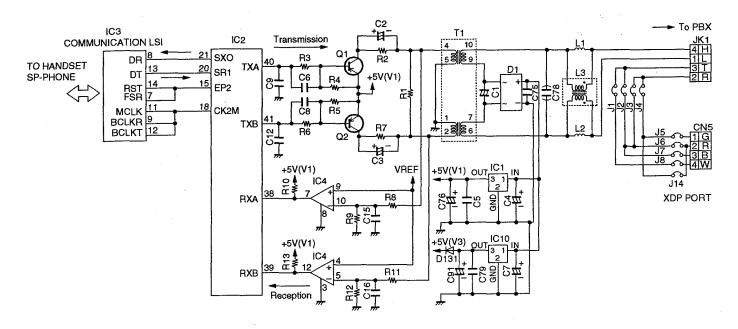
H, L Line \rightarrow T1 \rightarrow IC4 Pin 5, 10 \rightarrow IC2 Pin 38, 39 \rightarrow IC2 Pin 21 \rightarrow IC3 Pin 8

4) Transmission

The data to the EMSS proprietary telephone is transmitted along the following path.

IC3 Pin 13 \rightarrow IC2 Pin 20 \rightarrow IC2 Pin 40, 41 \rightarrow Q1, Q2 \rightarrow T1 \rightarrow H, L Line

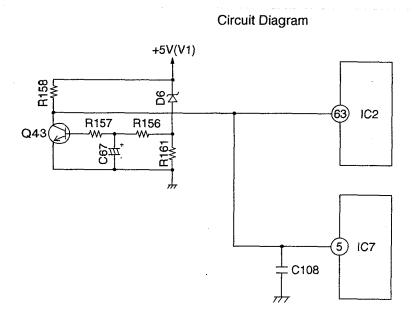
Circuit Diagram

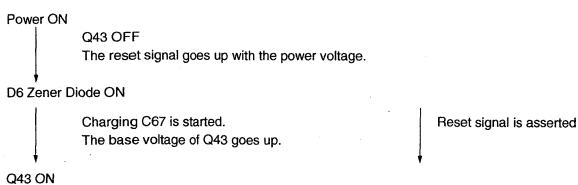


5. RESET CIRCUIT

1) Circuit Operation

This circuit is used for transmission of a reset pulse to the CPU (IC7) at the following times, connecting the telephone line jack and circuit operation.





The reset signal is negledted.

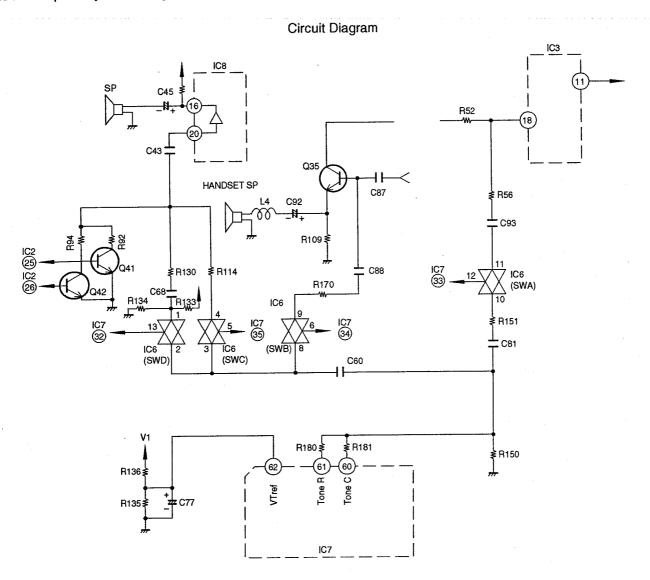
Reset signal IC2 Pin 63
IC7 Pin 5

Chi 2:06 V Ch2 500mV M20.0ms Ch1 2:32 V Ch4 200mV The first reset is asserted. The reset signal is neglected.

6. TONE GENERATION CIRCUIT

1) Function

All system tones including COL, extension, busy, DTMF signal and key-in tones are sent from Pins and of IC7 and controls the path by the Analog Switch (IC6).



2) Calling Tones from COL and EXT.

For a calling tone from a CO line or extension, the single row tone signal is output from Pin 61 of IC7 and the tone volume is controlled by transistors Q41 and Q42.

IC7 Pin 61 \rightarrow IC6 Pin 2~1 \rightarrow C43 \rightarrow IC8 Pin 20 \rightarrow IC8 Pin 16 \rightarrow C45 \rightarrow SP

Ringer Volume Control

Level Transistor	OFF	LOW	MIDDLE	HIGH
Q41	ON	ON	OFF	OFF
Q42	ON	OFF	ON	OFF

3) Busy Station Calling Tone

852 Hz and 697 Hz signals are output from Pin 61 of IC7 alternately at intervals of 60 ms. The signal flow is shown below.

IC7 Pin 61 \rightarrow IC6 Pin 3~4 \rightarrow R114 \rightarrow C43 \rightarrow IC8 Pin 20 \rightarrow IC8 Pin 16 \rightarrow C45 \rightarrow SP

4) DTMF Signal

A DTMF tone is generated by IC7 and the signal flow is shown below.

(To Telephone Line)

IC7 Pin 60,61
$$\longrightarrow$$
 IC6 Pin 10~11 \rightarrow R56 \rightarrow IC3 Pin 18 \rightarrow Telephone Line

(To Monitor) IC6 Pin 8~9 \rightarrow R170 \rightarrow C88 \rightarrow Q35 \rightarrow C92 \rightarrow Handset Speaker

(IC6 Pin 3~4 \rightarrow R114 \rightarrow C43 \rightarrow IC8 Pin 20 \rightarrow IC8 Pin 16 \rightarrow C45 \rightarrow SP)

DTMF Frequency Table

			High Group (IC7 Pin 77)	
		1209 Hz	1336 Hz	1477 Hz
	697 Hz	1	2	3
Low	770 Hz	4	5	6
Group (IC9 Pin 78)	852 Hz	7	8	9
	941 Hz	*	0	#

5) Key-in Tone

An 852 Hz single tone is used as the key-in tone. A tone is generated from IC7 and is heard at the speaker. The signal flow is shown below.

IC7 Pin 61 — IC6 Pin 8~9
$$\rightarrow$$
 R170 \rightarrow C88 \rightarrow Q35 \rightarrow C92 \rightarrow Handset Speaker IC6 Pin 3~4 \rightarrow R114 \rightarrow C43 \rightarrow IC8 Pin 20 \rightarrow IC8 Pin 16 \rightarrow C45 \rightarrow SP

CONDITION	IC6 SWA	IC6 SWB	IC6 SWC	IC6 SWD
Ringing	OFF	OFF	OFF	ON
Call Waiting	OFF	OFF	ON	OFF
Tone Dial (Handset)	ON	ON	OFF	OFF
Tone Dial (Speakerphone)	ON	OFF	ON	OFF

7. HANDSET CIRCUIT

1) Transmission Signal Path

The analog input signal for the handset microphone is changed to a digital signal and sent through the telephone line via the following path:

2) Reception Signal Path

The digital input signal from the telephone line is changed to an analog signal by IC3 and sent to the receiver via the following path:

Telephone Line \rightarrow T1 \rightarrow R8,R11 \rightarrow IC4 Pin 10, 5 \rightarrow IC2 \rightarrow IC3 \rightarrow R106 \rightarrow C86 \rightarrow C87 \rightarrow Q35 \rightarrow C92 \rightarrow L4 \rightarrow Handset Speaker

3) Circuit diagram for transmission / reception signal path.

Refer to page 35.

8. SPEAKERPHONE CIRCUIT

1) Function

This circuit controls the automatic switching of the transmitted and received signals to and from the telephone line, when the unit is used in the hands-free mode.

2) Circuit Operation

The speakerphone can only provide a one-way communication path.

In other words, it can either transmit an outgoing signal or receive an incoming signal.

This switching circuit is contained in IC8 and consists of a Voice Detector, Tx Attenuator, Rx Attenuator, Comparator and Attenuator Control. The circuit analyzes whether the Tx (transmit) or Rx (receive) signal is louder, and then it processes the signals so that the louder signal is given precedence.

The Voice Detector provides a DC input to the Attenuator Control corresponding to the Tx signal. The Comparator receives a Tx and Rx signal, and supplies DC input to the Attenuator Control corresponding to the Rx signal. The Attenuator Control provides a control signal to the Tx and Rx Attenuator to switch the appropriate signals ON and OFF. The Attenuator Control also detects the level of the volume control to automatically adjust the volume for changing ambient conditions.

3) Control Signal Path

Control signals for transmission and reception are input to IC8 via the following path:

(Transmission Control Signal Path)

MIC \rightarrow IC8 Pin 9 \rightarrow IC8 Pin 10 \rightarrow IC8 Pin 3 \rightarrow IC8 Pin 4 \rightarrow IC8 Pin 5

(Reception Control Signal Path)

D1/D2 Line \rightarrow IC3 Pin 4 \rightarrow R63 \rightarrow IC8 Pin 7

4) Transmission/Reception Switching

The comparison result between Tx and Rx output is a DC level at IC8 Pin 23.

Tx level is high Pin 23=Pin 20-6mV

Rx level is high Pin 23=Pin 20-150mV

The comparator output is connected to the attenuator control inside IC8.

5) Voice Detector

The output of the mic amp (Pin 10 of IC8) is supplied to Pin 13 of IC8 as a control signal for the voice detector.

6) Attenuator Control

The attenuator control detects the setting of the volume control through Pin 24 of IC8 and automatically adjusts the volume for changing ambient conditions.

7) Transmission Signal Path

The input signal from the microphone is sent through the circuit via the following path:

 $MIC \rightarrow C55 \rightarrow IC11 \ Pin \ 8\sim 9 \rightarrow C65 \rightarrow IC8 \ Pin \ 9 \rightarrow IC8 \ Pin \ 10 \rightarrow R121 \rightarrow C54 \rightarrow IC8 \ Pin \ 3 \rightarrow IC3 \ Pin \ 4 \rightarrow R71 \rightarrow C31 \rightarrow R52 \rightarrow IC3 \ Pin \ 18 \rightarrow IC2 \ Pin \ 20 \rightarrow D1/D2 \ Line$

8) Reception Signal Path

Signals received from the telephone line are output to the speaker via the following path:

D1/D2 Line \rightarrow IC2 Pin 21 \rightarrow IC3 Pin 4 \rightarrow R45 \rightarrow C30 \rightarrow R63 \rightarrow C37 \rightarrow IC8 Pin 29 \rightarrow IC8 Pin 28 \rightarrow R67 \rightarrow C42 \rightarrow C43 \rightarrow IC8 Pin 20 \rightarrow IC8 Pin 16 \rightarrow C45 \rightarrow SP

9) Busy Tone Detector circuit

The busy tone detection for the automatic redialing is executed as follow:

D1/D2 Line \rightarrow IC2 Pin 21 \rightarrow IC3 Pin 4 \rightarrow C28 \rightarrow IC5 Pin 6, 7 \rightarrow IC5 Pin 2 \rightarrow D7 \rightarrow Q45 \rightarrow IC7 Pin 64

10) OFF-HOOK Monitor Circuit

The input signal from the handset microphone is output through the speakerphone circuit.

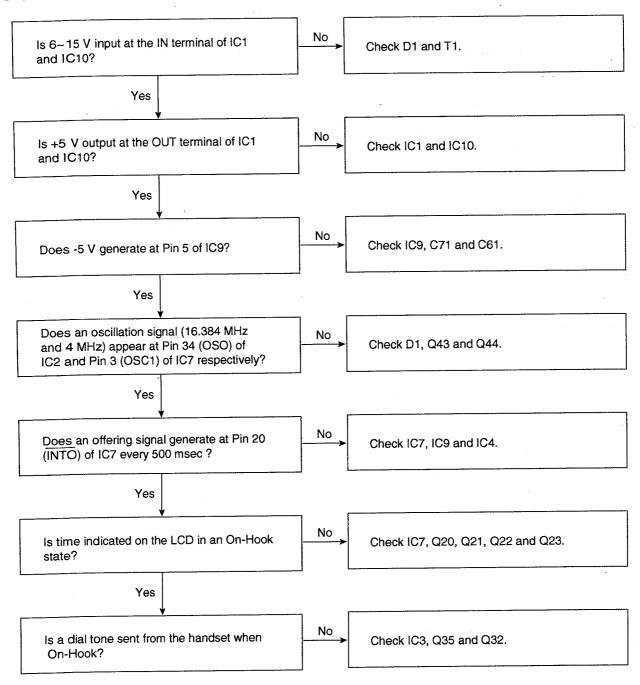
Handset MIC \rightarrow L5 \rightarrow R197 \rightarrow C97 \rightarrow IC11 Pin 10~11 \rightarrow C65 \rightarrow IC8 Pin 9 \rightarrow IC Pin 10 \rightarrow R121 \rightarrow C54 \rightarrow IC8 Pin 3 \rightarrow IC8 Pin 4 \rightarrow R71 \rightarrow C31 \rightarrow R52 \rightarrow IC3 Pin 18 \rightarrow IC2 Pin 20 \rightarrow D1/D2 Line

11) Circuit Diagram for signal path

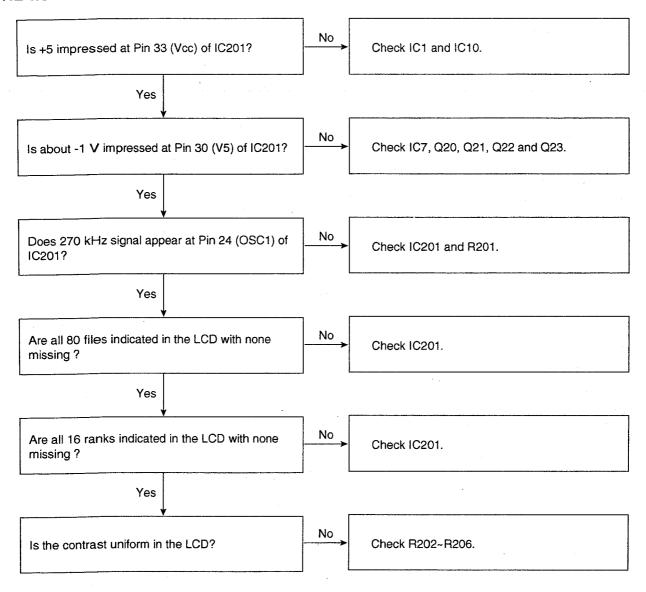
Refer to page 35.

TROUBLESHOOTING GUIDE

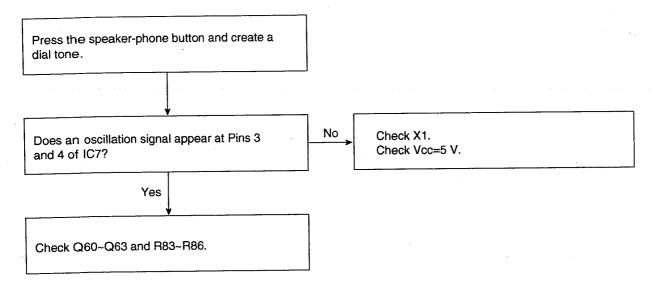
1. NO OPERATION.



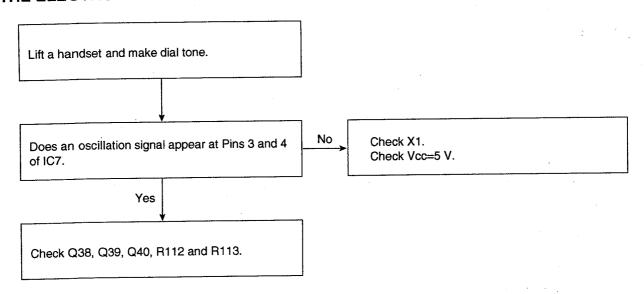
2. THE LCD DOES NOT OPERATE.



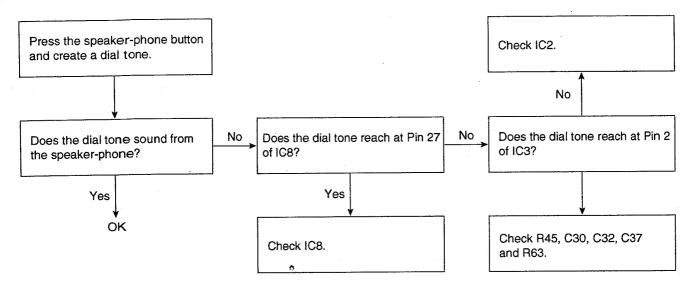
3. THE ELECTRONIC VOLUME OF THE SPEAKER-PHONE DOES NOT WORK.



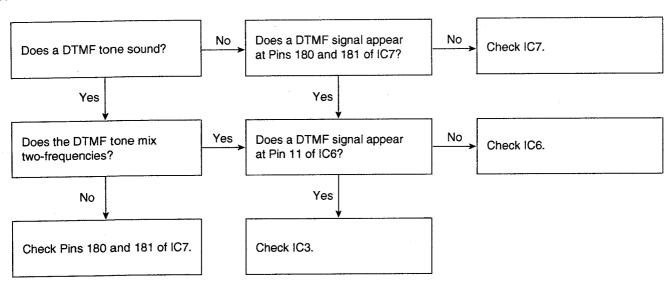
4. THE ELECTRONIC VOLUME OF THE HANDSET DOES NOT WORK.



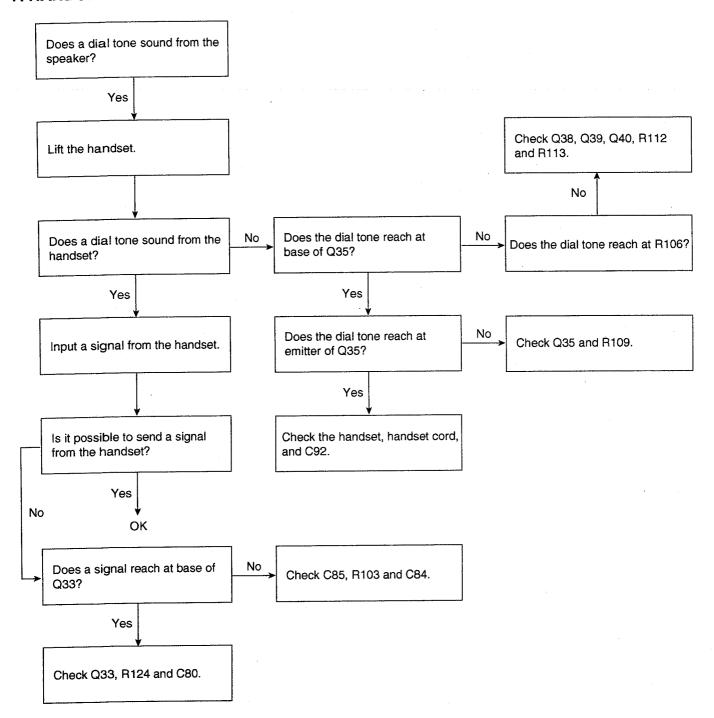
5. SPEAKER-PHONE TROUBLE.



6. TONE DIAL TROUBLE.



7. HANDSET TROUBLE.



TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES

		I		<u> </u>
30 Harman 15	1 3	64 64 65 65 80 1		20 mm ¹ 1
PQVISC77655V	PSVIBA06FP PSVIBA05FP	PSVI44780B24	PSVII24019T1	PSVIMC5480DW
14 June 8 7 7 1 PQVINJM319V	PQVINJM2904F PQVINJU7660M	PQVITC4066BF	33 32 48 17 17 49 64 1 17 PSVIBU65050D	33 48 49 64 1 16 PSVI4668A07H
2SA1576Q, P PQVTDTA140	C C QVTFB1J3P IXU, UN5213	PQVDS1ZB60F1	Anode Cathode RLS71	Cathode Anode PSVDUDZ39B
PQVTDTD133	BHK, 2SC4081Q Green Anode			PSVDUDZ68B
Cathode	Cathode			
PQVDPY1204	PQVDBR1102W PQVDPY1102			

HOW TO REPLACE THE FLAT PACKAGE IC

If you do not have the special tools (for example: SPOT HEATER) to remove the SPOT HEATER'S Flat IC, if you have solder (large amount) a soldering iron and a cutter knife, you can easily remove IC's even though large than 100 pin.

1. PREPARATION

· SOLDER _ _ _ _ _ Sparkle Solder 115A-1, 115B-1

OR

Almit Solder KR-19, KR-19RMA

 \cdot Soldering iron – – – – Recommended power consumption is between 30 W to 40 W.

Temperature of Copper Rod 662 \pm 50 °F (350 \pm 10°C)

(An expert may handle a 60~80 W iron, but a beginner might

damage the foil by overheating.)

· Flux - - - - - - - HI115 Specific gravity 0.863

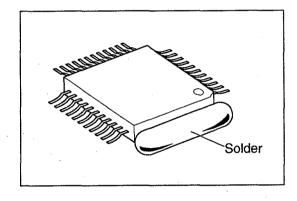
(Original flux should be replaced daily.)

2. FLAT PACKAGE IC REMOVE PROCEDURE

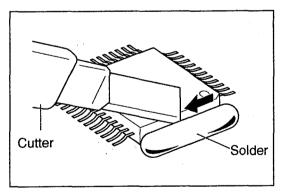
1) When all of the IC lead can not been seen at the standard degree, fill with large quantities of solder.

Note:

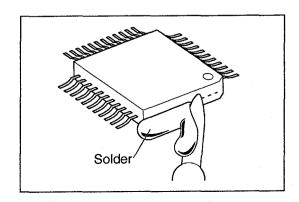
If you do not fill with solder and directly cut the IC lead with the cutter, stress may build up directly in the P.C.board's pattern. If you do not fill with large quantities of solder as in step 1 the P.C.board pattern may be removed.



2) Using a cutter, cut the lead at the source.(Cut the contents with the cutter lightly 5 or 6 times.)



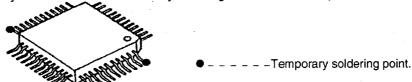
Remove when the solder melts.(Remove the lead at the same time.)



After removing the Flat IC and when attaching the new IC, remove any of the excess solder on the land using the soldering wire, etc. If the excess solder is not removed from the land, the IC will slip and not be attached properly.

3. FLAT PACKAGE IC INSTALLATION PROCEDURE

1) Temporarily fix the FLAT PACKAGE IC by soldering on the two marked pins.

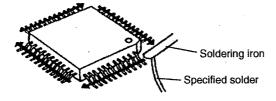


*Check the accuracy of the IC setting with the corresponding soldering foil.

2) Apply flux to all pins of the FLAT PACKAGE IC.

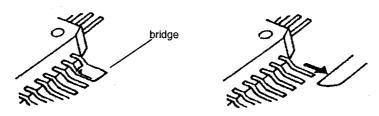


3) Solder using the specified solder, in the direction of the arrow, by sliding the soldering iron.



4. BRIDGE MODIFICATION PROCEDURE

- 1) Lightly re-solder the bridged portion.
- 2) Remove the remaining solder along the pins using a soldering iron as shown in the figure below.

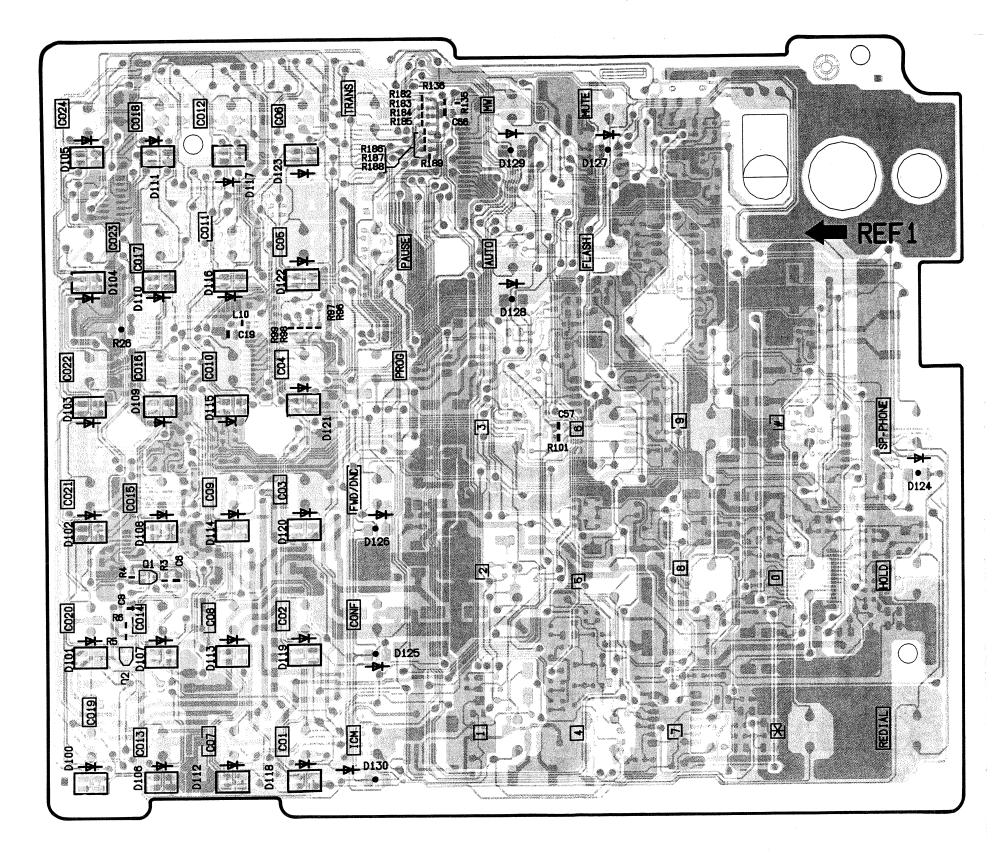


KX-T7431C/KX-T7431C-B

PRINTED CIRCUIT BOARD (MAIN BOARD)

| 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12

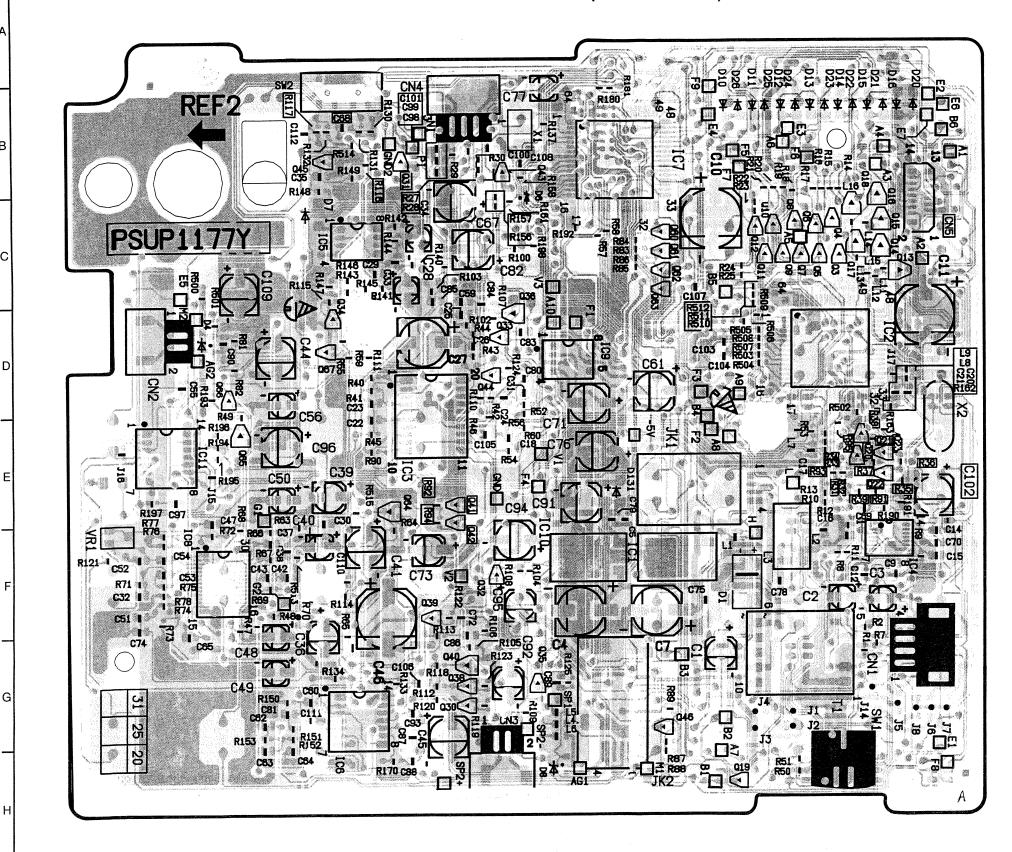
(BOTTOM VIEW)



- **Notes:** 1. The circuit shown in on the conductor indicates printed circuit on the back side of the printed circuit board.
 - 2. The circuit shown in on the conductor indicates printed circuit on the front side of the printed circuit board.
 - 3. This printed circuit board may be modified at any time with the development of new technology.

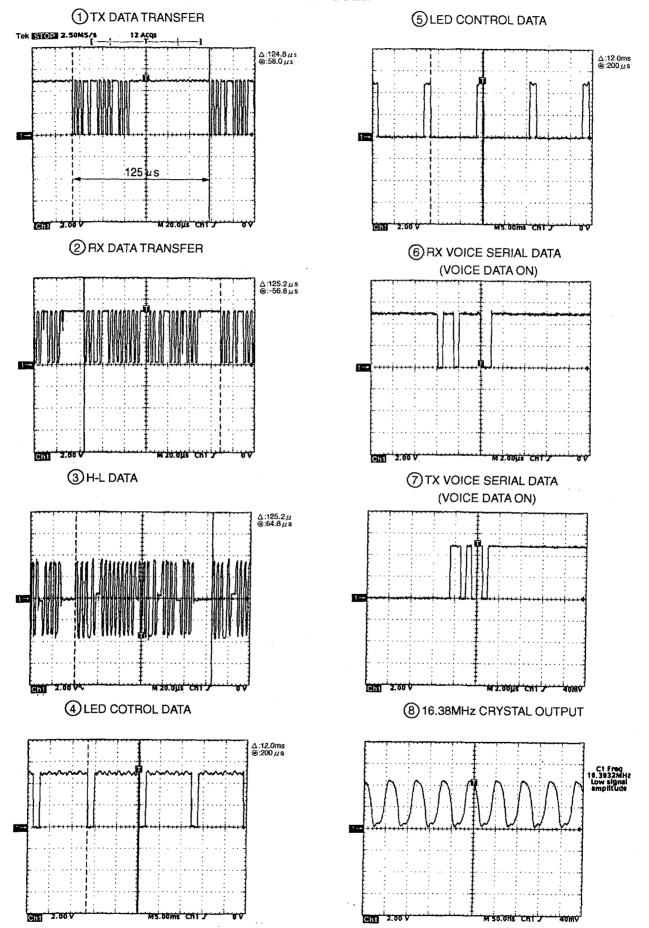
PRINTED CIRCUIT BOARD (MAIN BOARD)

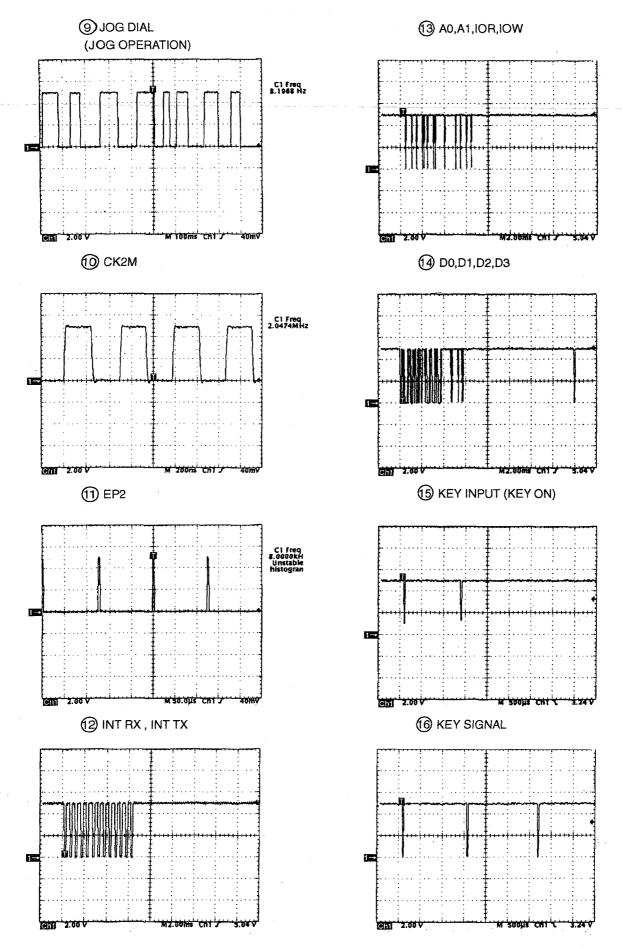
(COMPONENT VIEW)



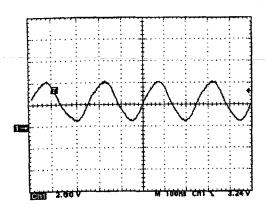
- **lotes:** 1. The circuit shown in on the conductor indicates printed circuit on the back side of the printed circuit board.
 - 2. The circuit shown in on the conductor indicates printed circuit on the front side of the printed circuit board.
 - 3. This printed circuit board may be modified at any time with the development of new technology.

WAVEFORM

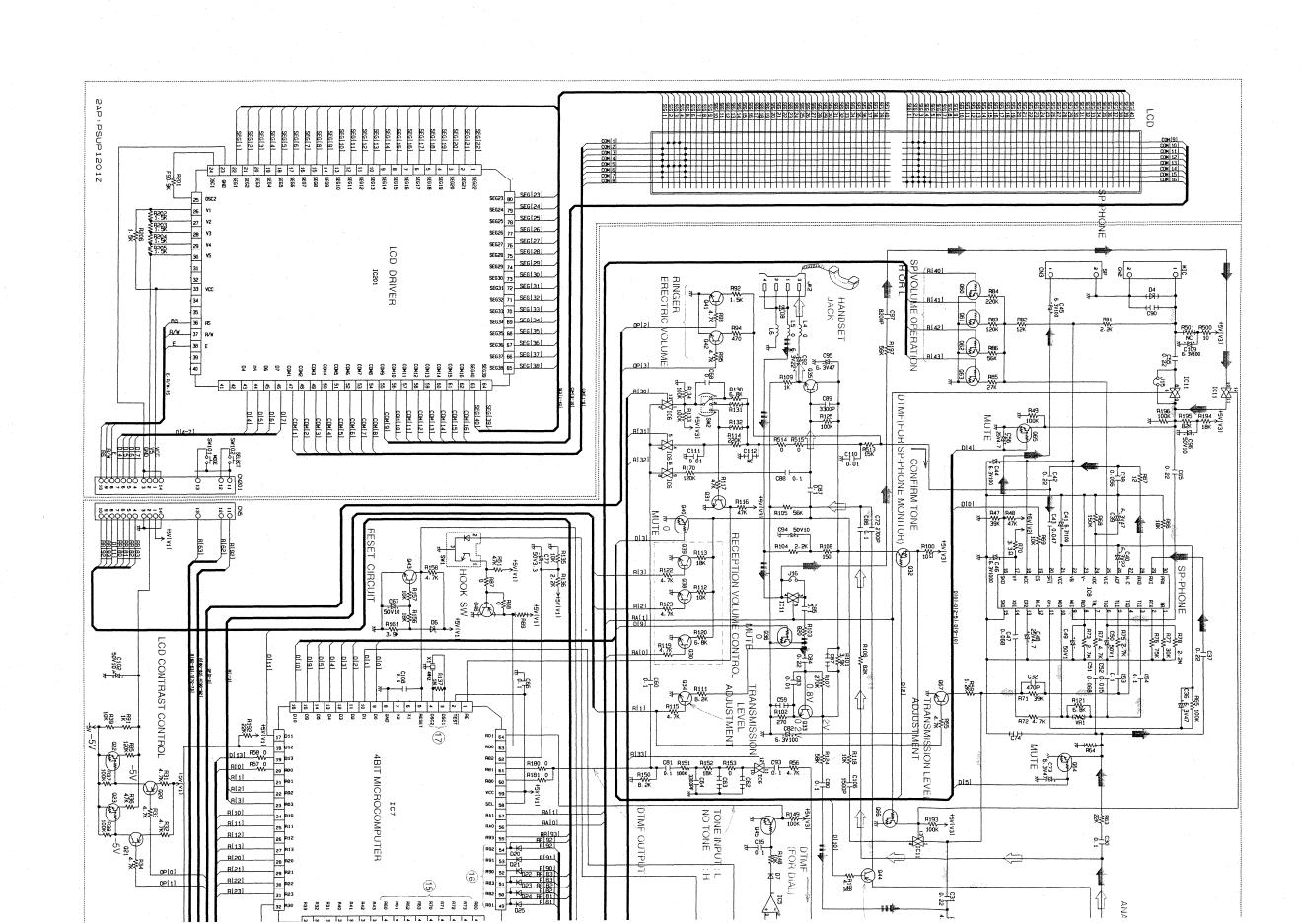








MEMO



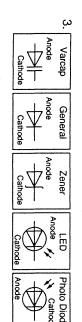
D

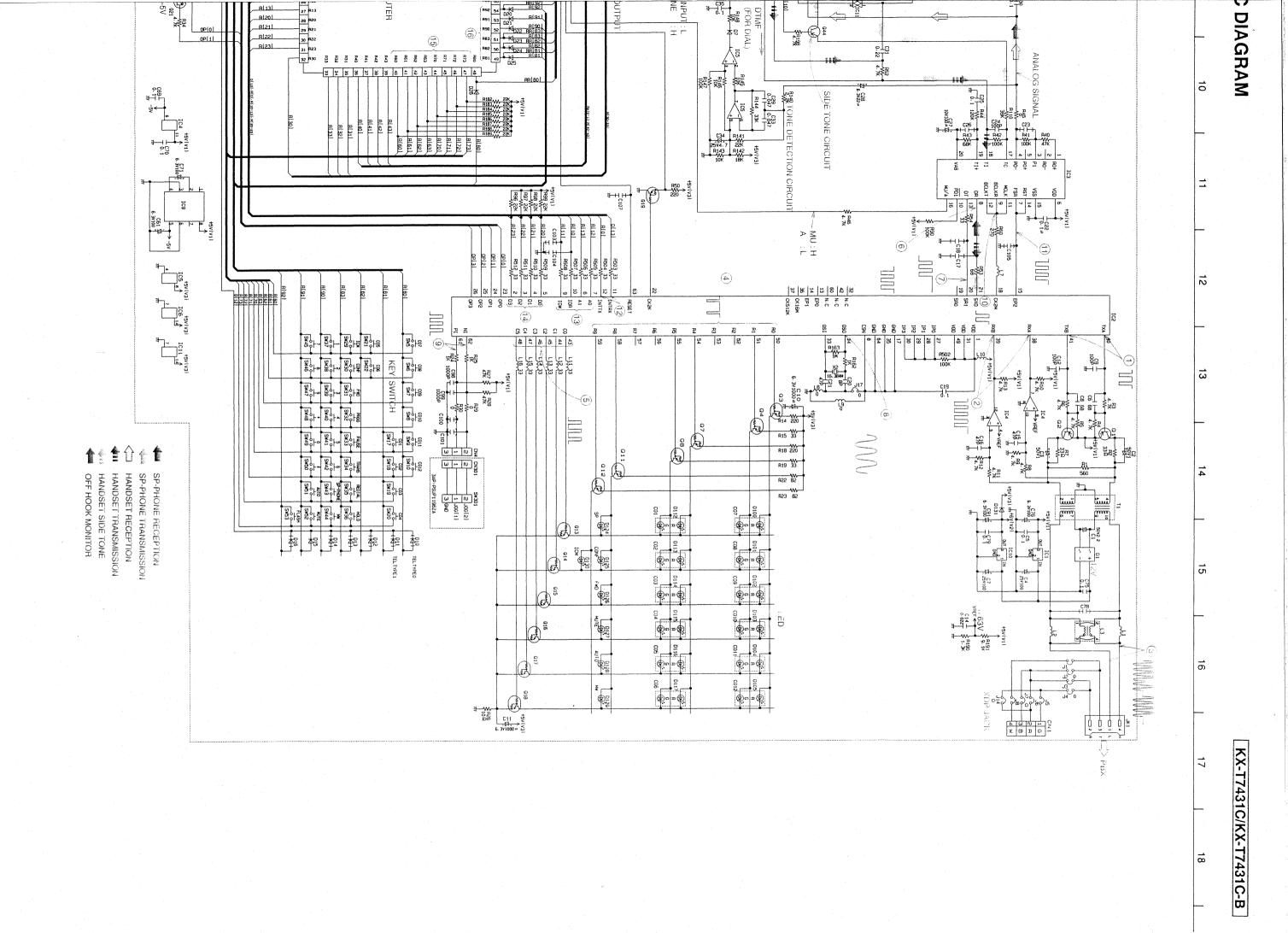
Notes:

1. DC voltage measurements are taken with os ground line.
(Waiting condition)

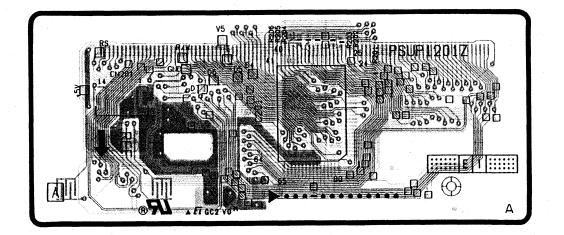
2. The schematic diagram may be modified at development of new technology.

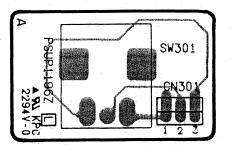
from

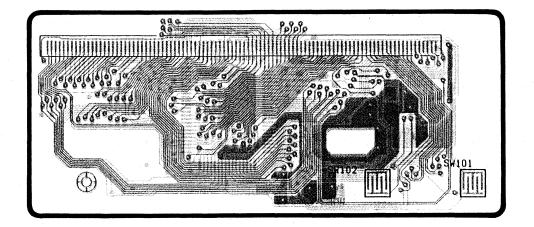


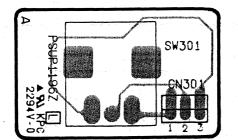


PRINTED CIRCUIT BOARD

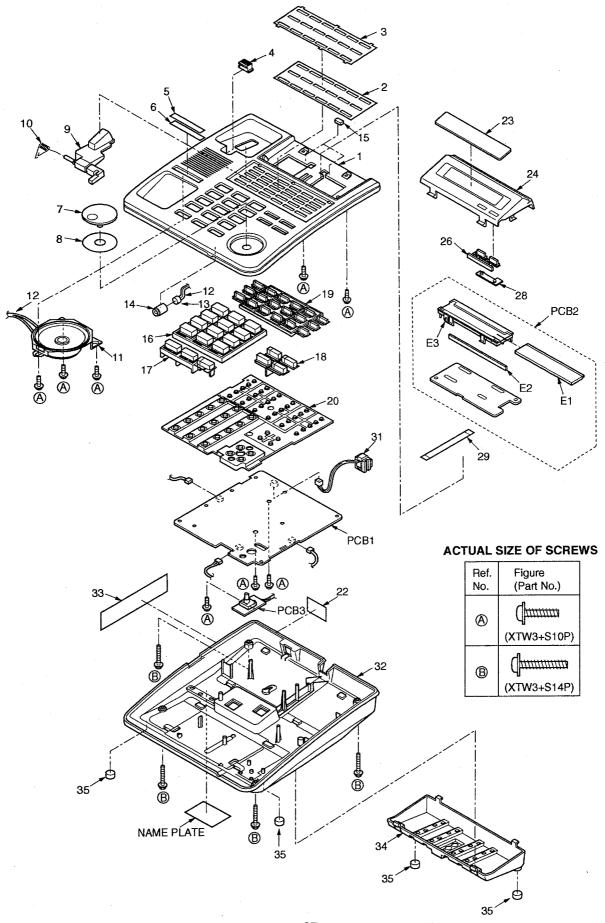




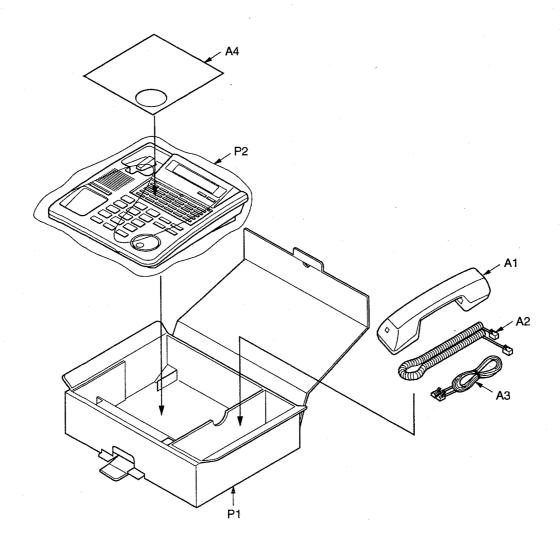




CABINET AND ELECTRICAL PARTS LOCATION



ACCESSORIES AND PACKING MATERIALS



This replacement parts list is for KX-T7431C/T7431C-B only. Refer to the simplified manual (cover) for other areas.

	REP	LACEM	ENT P	ARTS	LIST	
		Mo	del KX-	T74310	C/KX-1	7431C-l
be available for dependent on part and producinger be available. The Smart 3. RESISTORS Unless other All resistors at All capacitors	continuation of the or a specific per the type of assuct retention. Alailable, indicates services	nis assemiod of time embly, an ofter the enstandard S k=1000Ω,I	bly in pro e. The re d in acco d of this p parts an M=1000kΩ	duction, petention petention perdance wo period, the dimay di	the item period of with the l ne asser	will conti availabilit aws gover nbly will no
Type ERC:Solid ERD:Carbon PQRD:Carbor	ERG:Metal	IX:Metal Film PQ4R:Carbon IG:Metal Oxide ERS:Fusible Resistor IO:Metal Film ERF:Cement Resistor				
Wattage 10,16:1/8W	14,25:1/4W	112-	1/2W	I1:1V	V 12:3	W 3:3W
	age of Capacitor					<u> </u>
ECFD:Semi-C ECQS:Styrol PQCUV:Chip ECQMS:Mica Voltage	ECCD,ECKD,ECBT,PQCBC : Ceramic ECQE,ECQV,ECQG : Polyster ECEA,ECSZ : Electrolytic ECQP : Polypropylene					
ECQ Type	ECQ Type ECQG		уре	Oth		
1H: 50V	ECQV Type 05: 50V	0F:3.15	SV OJ	:6.3V	1\	/ :35V
		1A:10\		:0.3V :10V		,1H:50V
1 1	1 1·100V					
2A:100V 2E:250V	1:100V 2:200V	1V:35\		:16V	1,	

Ref. No.	Part No.	Part Name & Description	Pcs
		CABINET AND ELECTRICAL PARTS	
1	PSKM1052X1	CABINET BODY (KX-T7431C)	1
1	PSKM1052X2	CABINET BODY (KX-T7431C-B)	1
2	PSGD1027Z	CARD, DIAL (KX-T7431C)	1
2	PSGD1034Z	CARD, DIAL (KX-T7431C-B)	1
3	PSHR1142Z	TRANSPARENT PLATE	1
4	POKE82X1	HANGER (KX-T7431C)	1
4	PQKE82X3	HANGER (KX-T7431C-B)	1
5	POHR576Z	TRANSPARENT PLATE	1
6	PQHP532X	CARD, TEL. NO.	1
7	PSBC1012Z1	BUTTON, JOG DIAL (KX-T7431C)	1
7	PSBC1012Z2	BUTTON, JOG DIAL (KX-T7431C-B)	1
8	PSHR1164Z	SPACER	1
9	PSBH1002Z1	BUTTON, HOOK (KX-T7431C)	1
9	PSBH1002Z2	BUTTON, HOOK (KX-T7431C-B)	1
9	FODITIOOEZZ	20,101,110011 (101111010 2)	•
10	PSUS1006Z	SPRING	1
11	POAS65P28Z	SPEAKER	1
12	PSJS02Q35Z	CONNECTOR	2
13	RJM142Z	MICROPHONE S	1
14	PSHG1122Z	RUBBER PARTS, MIC COVER	1
15	PSHG1180Z	SPACER	2
16	PSBX1039Z1	BUTTON, DIAL (KX-T7431C)	1
16	PSBX1039Z2	BUTTON, DIAL (KX-T7431C-B)	1
	PSYX1001Z1	BUTTON, 3KEY (KX-T7431C)	1
17	PSYX1001Z2	BUTTON, SKEY (KX-T7431C-B)	,
17	PSBX1042Z1	BUTTON, 4KEY (KX-T7431C)	•
18	PSBX1042Z2	BUTTON, 4KEY (KX-T7431C-B)	•
18	PSBX104222	BUTTON, 18KEY (KX-T7431C)	1
19	PSBX1053Z1	BUTTON, 18KEY (KX-17431C-B)	1
19	PSBX105322	BUTTON, TOKET (KX-174310-B)	'
20	PSSX1006Z	KEY SWITCH	1
21	Not Used		
22	PQQT11166Z	LABEL, NOTE	1
23	PSGP1030Z1	PANEL, LCD (KX-T7431C)	1
23	PSGP1030Z2	PANEL, LCD (KX-T7431C-B)	1
24	PSGG1010Z1	GRILLE (KX-T7431C)	1
24	PSGG1010Z2	GRILLE (KX-T7431C-B)	1
25	Not Used		
26	PSBX1062Z1	BUTTON, 3KEY (KX-T7431C)	1
26	PSBX1062Z2	BUTTON, 3KEY (KX-T7431C-B)	1
27	Not Used	[
28	PSSX1011Z	KEY SWITCH	1
29	PSJE1012Z	FLAT CABLE .	11

Ref. No. Part No.		Part Name & Description	Pcs				
30 31 32 32 33 33 34 34 35	Not Used PSJJ1T017Z PSKF1024X1 PSKF1024X2 PSQT1309X PSQT1309W PSKL1005Z1 PSKL1005Z2 PSHA1002Z	JACK, TEL. CABINET, LOWER (KX-T7431C) CABINET, LOWER (KX-T7431C-B) LABEL, CAUTION (KX-T7431C) LABEL, CAUTION (KX-T7431C-B) STAND (KX-T7431C) STAND (KX-T7431C-B) RUBBER PARTS, FOOT	1 1 1 1 1 1 1				
	ACCESSORIES AN	PACKING MATERIALS					
A1 A1 A2 A2 A3 A4	PQJX2PS409Z PQJX2PM409Z PSJA1043Z PSJA1043Y PQJA48W PSGD1040Z	HANDSET (KX-T7431C) HANDSET (KX-T7431C-B) CORD, HANDSET (KX-T7431C) CORD, HANDSET (KX-T7431C-B) CORD, TEL. CARD, OVERLAY GIFT BOX (KX-T7431C)	1 1 1 1 1 1 1				
A2 PSJA1043Y A3 PQJA48W A4 PSGD1040Z C P1 PSPK1363Z P1 PSPK1417Z P2 PQPP170Z E PCB1 PSWP1T7431C IC1 PSVIBA05FP IC2 PSVIBU65050D IC3 PSVIMC5480DW IC4 PQVINJM319V IC5 PQVINJM319V IC5 PQVINJM32904F		GIFT BOX (KX-T7431C-B) BAG,POLYETHYLENE	1 1				
P1 PSPK1363Z P1 PSPK1417Z P2 PQPP170Z PCB1 PSWP1T7431C IC1 PSVIBA05FP IC2 PSVIBU65050D IC3 PSVIMC5480DW IC4 PQVINJM319V IC5 PQVINJM2904F IC6 PQVITC4066BF IC7 PSVI4668A07H		MAIN BOARD PARTS					
PCB1	PSWP1T7431C	MAIN BOARD ASS'Y (RTL)	1				
IC2 IC3 IC4 IC5 IC6 IC7	PSVIBU65050D PSVIMC5480DW PQVINJM319V PQVINJM2904F PQVITC4066BF PSVI4668A07H	(ICs) IC	1 1 1 1 1 1 1 1				
Q36 Q38,39 Q40	2SA1576Q PQVTDTA143XU PQVTDTA143XU PQVTDTA143XU PQVTDTA143XU PQVTDTD133HK PQVTDTA143XU 2SA1576Q UN5213 2SC4081Q PQVTDTA143XU 2SC4081Q PQVTFB1J3P 2SC4081Q PQVTFB1J3P 2SC4081Q UN5213 UN5213 PQVTFB1J3P UN5213 PQVTFB1J3P UN5213 2SC4081Q	(TRANSISTORS) TRANSISTOR(SI)	2 2 2 2 6 1 1 2 2 1 3 1 2 1 3 1 1 4 2 1 1				
D112-117	PQVDS1ZB60F1 PSVDUDZ39B RLS71 PSVDUDZ68B RLS71 RLS71 PQVDPY1204 PQVDPY1204 PQVDBR1102W PQVDPY1102 RLS71	DIODE(SI) DIODE(SI) DIODE(SI) DIODE(SI) DIODE(SI) DIODE(SI) DIODE(SI) DIODE(SI) LED S LED S LED S LED DIODE(SI)	1 1 1 1 1 7 6 6 6				

This replacement parts list is for KX-T7431C/T7431C-B only. Refer to the simplified manual (cover) for other areas.

	Part No.	Part Name & Description		Pcs	Ref. No.	Part No.	Part Name & Description		Pcs
		(CONNECTORS)			C80,81	PQCUV1E104MD	0.1		2
CN1	PSJP04A05Z	CONNECTOR, 4P		1	C82	PSCEVOJA101	100		1
N2,3	PSJP02A05Z	CONNECTOR, 2P		2	C83	PQCUV1H103KB	0.01		1
N4	PSJP03A05Z	CONNECTOR, 3P		1	C84	PQCUV1C224KB	0.22	s	1
N5	PSJS14A61Z	CONNECTOR, 14P		1	C85-88	PQCUV1E104MD	0.1	1	4
					C89	PQCUV1H332KB	0.0033		1
		1			C91	PSCEVOJA101	100	.	1
		(CAPACITORS)			C92	PSCEV0JA220	22		1
:1	ECEV1HA2R2N	2.2		1	C93	PQCUV1E104MD	0.1		1
2,3	PSCEV1HA010	1		2	C94	PSCEV1HA100	10	Ì	1
24	PSCEV1EA101	100		1	C95	PSCEV0JA470	47		1
25	PQCUV1E104MD	0.1	s	1	C96	PSCEV1HA100	10		1
26	PQCUV1H680JC	68P		1	C97	PQCUV1H822KB	0.0082	s	1
	PSCEV1EA101	100		1	C98,99	PQCUV1H102J	0.001	s	2
8	PQCUV1H680JC	68P		1	i i	1			
29	PQCUV1H101JC	100P		1	C102	PSCEV1HA100	10	1	1
				1	C106	PQCUV1H152KB	0.0015	i	1
210,11	PSCEV0JA102	1000		2	C108	PQCUV1E104MD	0.1	s	1
212	PQCUV1H101JC	100P		1	C109	PSCEV0JA101	100		1
214	PQCUV1H223KB	0.022		l i		ECUV1H103KBV	0.01		2
215,16	PQCUV1H470JC	47P		2	[]				_
219	PQCUV1E104MD	0.1	s	1			1		
						1			
C20	PQCUV1H080DC	8P		1	l	 	(JACKS)		
C21	PQCUV1H470JC	47P	_	1 1	JK1	PSJJ1T011Z	JACK		1
C22	PQCUV1E104MD	0.1	S	1	JK2	PSJJ1T012Z	JACK		- 1
C24	PQCUV1H101JC	100P		,	11	-		į	
025 025	PQCUV1E104MD	0.1		1		İ	(COILS)		
C27	PSCEV1AA331	330		1	L1,2,6	PQLQR1LT	COIL		3
C28	PSCEVOJA220	22		1	L7,10	PQLQR1RM601	COIL		2
C29	PQCUV1H473MD	0.047	s	1	1	T GELGITITIMOO!	OOIL	1	-
<i>3</i> 23	1 400111110	1	Ţ	l '					
C30	PQCUV1E104MD	0.1		1					
C31	PQCUV1C224KB	0.22	s	1	l I		(RESISTORS)		
C32	PQCUV1H471JC	470P		1	C68	PQ4R10XJ000	o .		1
C33	PQCUV1H473MD	0.047	s		11			1	
C34	PSCEV1EA4R7	4.7		1	J2	PQ4R18XJ000	lo		1
C35	PQCUV1E104MD	0.1		1	J 4	PQ4R18XJ000	lo]	1
C36	PSCEVOJA470	47		1	J7	PQ4R18XJ000	0		1
C37	PQCUV1C224KB	0.22	s	1	J14	PQ4R18XJ000	lo	1	1
C38	PQCUV1H563KB	0.056		1	J17	ERJ3GEY0R00	lo		1
C39	PSCEVOJA470	47		1			•		
	ĺ				L4,5	PQ4R10XJ000	0		2
C40	PSCEV0JA220	22		1	L8,9	ERJ3GEY0R00	0	1	2
C41	PSCEV0JA101	100		1	L11-16	ERJ3GEYJ330	0	1	6
C42	PQCUV1C224KB	0.22	S	1	11]			
C43	PQCUV1H473MD	0.047	S	1	R1	ERJ3GEYJ561	560	- 1	1
C44,45	PSCEVOJA101	100		2	R2	ERJ3GEYJ330	33	- 1	1
C46	PSCEV0JA102	1000		1	R3-6	ERJ3GEYJ472	4.7K		4
C47	PQCUV1H683MD	0.068		. 1	R7	ERJ3GEYJ330	33	_]	1
C48	PSCEV1EA4R7	4.7		1	R8,9	ERJ3GEYJ472	4.7K	- 1	2
C49	PSCEV1HA010	[1		1		L		- 1	
	1	1		1	R10-13	ERJ3GEYJ472	4.7K		4
C50	PSCEV1HA010	[1]	1	1	R14	ERJ3GEYJ221	220	- 1	1
C51	PQCUV1H683MD	0.068		1	R15	ERJ3GEYJ330	33	- 1	1
C52	PQCUV1H153KB	0.015	_	1	R18	ERJ3GEYJ221	220	1	1
C53	PQCUV1H104ZF	0.1	s	1	R19	ERJ3GEYJ330	33	1	1
C54	PQCUV1E104MD	0.1	_	1			1	- 1	
C55	PQCUV1C224KB	0.22	s	1	R22,23	ERJ3GEYJ820	82	1	2
C56	PSCEV1EA4R7	4.7		1	R24,25	ERJ3GEYJ102	1K	- 1	2
					R26	PQ4R18XJ100	10	- 1	1
C60	PQCUV1E104MD	0.1		1	R27,28	ERJ3GEYJ473	47K	- 1	2
C61	PSCEVOJA101	100	_	1	R29	ERJ3GEY0R00	0	- 1	1
C65	PQCUV1C224KB	0.22	S	1	Doo	ED IOOF\C-S		- 1	
C66	IPQCUV1E104MD	0.1	s	1	R30	ERJ3GEY0R00	0	- 1	1
C67	PSCEV1HA100	10	ا ِ	1	R31-34	ERJ3GEYJ472	4.7K	- [4
C69	PQCUV1E104MD	0.1	s	1	R35	ERJ3GEYJ124	120K	- 1	1
	DOOLD ALCOHOL	0.4	ا _ ا		R36	ERJ3GEYJ473	47K	١	1
C70	PQCUV1E104MD	0.1	s	1	R37,38	ERJ3GEYJ104	100K	- 1	2
C71	PSCEVOJA101	100		1	R39	ERJ3GEYJ103	10K	- 1	1
C72	PQCUV1H272KB	0.0027		1	l	ED IOOTIVI		ı	
C73	PSCEVOJA470	47	ا	1	R40	ERJ3GEYJ473	47K	- 1	1
C75	PQCUV1E104MD	0.1	s	1	R41	ERJ3GEYJ124	120K	- 1	1
C76	PSCEVOJA101	100	1	1	R42	ERJ3GEYJ104	100K		1
C77	PSCEV1HA3R3	3.3	- 1	1	R43	ERJ3GEYJ683	68K	- 1	1
C79	PQCUV1E104MD	0.1	s	1	R44	ERJ3GEYJ124	120K	1	1
			l	ŀ	R45	ERJ3GEY0R00	0	- 1	, 1
	1	1		J		ERJ3GEYJ472	4.7K	-	1
	I		l	1	R47	ERJ3GEYJ393	39K	- 1	1
	1	i	i	ı	R48	ERJ3GEYJ473	47K	ı	
		į.			11.1-10	L1.000L10470	13111	ı,	1

This replacement parts list is for KX-T7431C/T7431C-B only. Refer to the simplified manual (cover) for other areas.

Ref. No.	Part No.	Part Name & Description	Pcs	Ref. No.	Part No.	Part Name & Description	Pcs
R50	ERJ3GEYJ221	220	1	R148	ERJ3GEYJ103	10K	1
₹51	ERJ3GEYJ473	47K	1	R149	ERJ3GEYJ104	100K	1
R52	ERJ3GEYJ472	4.7K	1	i I			l
753	ERJ3GEYJ680	68	1 1	R150	ERJ3GEYJ822	8.2K	1
R54	ERJ3GEYJ330	33	1	R151	ERJ3GEYJ154	150K	1
R55.56	ERJ3GEYJ472	4.7K	2	R152	ERJ3GEYJ183	18K	i
R57,58	ERJ3GEY0R00	0	2	R153	ERJ3GEY0R00	0	li
	ERJ3GEYJ122	1.2K	1	R156		18K	1
R59	EHJ3GE 13122	1.28	1 ' 1		ERJ3GEYJ183		1 1
	051/1			R157	ERJ3GEYJ103	10K	1
R60	ERJ3GEYJ271	270	1	R158	ERJ3GEYJ472	4.7K	1
R63	ERJ3GEYJ223	22K	1	R161	ERJ3GEYJ392	3.9K	1
R65	ERJ3GEYJ104	100K] 1]	R162	ERJ3GEYJ102	1K	1
R66	ERJ3GEYJ183	18K	1	R163	ERJ3GEYJ105	1M	1
R67	ERJ3GEYJ120	12	1 1	R170	ERJ3GEYJ124	120K	1
R68	ERJ3GEYJ154	150K	1 1	}			1
R69	ERJ3GEYJ103	10K	1	R180,181 R182-189	ERJ3GEY0R00 ERJ3GEYJ223	0 22K	2 8
R70	PQ4R18XJ3R3	3.3	1 1				ľ
R71	ERJ3GEYJ393	39K	1	R190	ERJ3GEYJ132	1.3K	1
R72	ERJ3GEYJ472	4.7K	1	R191	ERJ3GEYJ912	9.1K	
							1
R73	ERJ3GEYJ275	2.7M	!!	R192	ERJ3GEYJ223	22K	1
R74	ERJ3GEYJ472	4.7K	1	R193	ERJ3GEYJ104	100K	1
R75	ERJ3GEYJ272	2.7K	1 1	R194	ERJ3GEYJ183	18K	1
R76	ERJ3GEYJ753	75K	1	R195	ERJ3GEYJ823	82K	1
R77	ERJ3GEYJ303	зоК	1	R196	ERJ3GEYJ104	100K	1
R78	ERJ3GEYJ225	2.2M	1	R197	ERJ3GEYJ563	56K	1
l''' -	1	1		R198	ERJ3GEYJ472	4.7K	Ιi
R81	ERJ3GEYJ222	2.2K	1	١١٠٠٠	1	1	Ι ΄
	ERJ3GEYJ123	12K		R500	ED ISCEVIAN	10	١.
R82	2	120K			ERJ3GEYJ100	•	1 1
R83	ERJ3GEYJ124	I .	1 1	R502	ERJ3GEYJ104	100K	1
R84	ERJ3GEYJ224	220K	1 1	R503-512	ERJ3GEYJ330	33	10
R85	ERJ3GEYJ273	27K	1 1	R513	ERJ3GEYJ153	15K	1
R86	ERJ3GEYJ563	56K	1	R514,515	ERJ3GEY0R00	0	2
R87,88	ERJ3GEY0R00	0	2				
R90	ERJ3GEYJ104	100K	1				
R91	ERJ3GEYJ102	1K	1 1	1		(TRANSFORMER)	ı
R92	ERJ3GEYJ152	1.5K	1 1	T1	PSLT9Z4A	TRANSFORMER	1
R93	ERJ3GEYJ472	4.7K	1 1			İ	1
R94	ERJ3GEYJ471	470	1 1			l	
R95	ERJ3GEYJ472	4.7K				(CRYSTAL OSCILLATORS)	İ
R96-99	ERJ3GEYJ223	22K	4	X1	PSVCYZ0400M6	CRYSTAL OSCILLATOR S	1
n90-99	EN00GL 10220	221	"	X2	PSVCCR1638B7		
	ED MOEV HOS	10		^-	P3VCCN163657	CRYSTAL OSCILLATOR	1
R100	ERJ3GEYJ100		1				i
R101	ERJ3GEYJ392	3.9K	1		<u></u>		<u> </u>
R102	ERJ3GEYJ271	270	1 1	i		LCD BOARD PARTS	
R103	ERJ3GEYJ821	820	1 1				
R104	ERJ3GEYJ222	2.2K	1 1	PCB2	PSWP2T7431G	LCD BOARD ASS'Y (RTL)	1
R105	ERJ3GEYJ563	56K	1 1		ł		İ
R106	ERJ3GEYJ123	12K	1	1	[İ
R107	ERJ3GEYJ274	270K	1 1		<u> </u>	(ICs)	i
R108	ERJ3GEYJ151	150	1 1	IC201	PSVI44780B24	ic	1
R109	ERJ3GEYJ102	1K	i	10201	011447.000224		<u>'</u>
R110	ERJ3GEYJ393	39K	1	1		(CONNECTOR)	
R111	ERJ3GEYJ822	8.2K	1	CN201	PSJS14A21Z	CONNECTOR, 14P	1
R112	ERJ3GEYJ332	3.3K	1	1	l		i .
R113	ERJ3GEYJ822	8.2K		I	1		l
				I	1	(DEGISTORS)	1
R114	ERJ3GEYJ224	220K	1	Door	DO 4D4 OVE	(RESISTORS)	
R115	ERJ3GEYJ472	4.7K	1	R201	PQ4R10XF9102	90.9K	1
	ERJ3GEYJ473	47K	2	R202-206	PQ4R10XJ152	1.5K ⁻	5
R118	ERJ3GEYJ103	10K	1	1	1	1	ĺ
R119	ERJ3GEYJ472	4.7K	1			(OTHERS)	
R120	ERJ3GEYJ182	1.8K	1	E1	EDD103U36AAG	LIQUID CRYSTAL DISPLAY	4
	ERJ3GEYJ682	6.8K		E1 E2	PSSE1014Z		1
R121	3					CONNECTOR	2
R122,123	ERJ3GEYJ472	4.7K	2	E3	PSHR1150Z	GUIDE	1
R124 R125	ERJ3GEYJ124 ERJ3GEYJ104	120K 100K	1	 	<u> </u>	SWITCH BOARD PARTS	
R130	ERJ3GEYJ682	6.8K	1	PCB3	IPSWP3T7431C	JSWITCH BOARD ASS'Y (RTL)	1
	i e	100K	2	I OBS	,, 57773174310	TOTALION BOARD ASS T (RIL)	'
	ERJ3GEYJ104			I	Į.		
R135	ERJ3GEYJ103	10K	1	1	l	LOWITOUS	
	ERJ3GEYJ222 ERJ3GEYJ105	2.2K 1M	1	SW301	PSSRCA101Z	(SWITCH)	1
		l i	· 1			'	•
R136 R137	ED ISOEV ISSS	o ok	. 1	1	ł		
R137 R140	ERJ3GEYJ222	2.2K	1			(CONTROTOR)	
R137 R140 R141	ERJ3GEYJ223	22K	1			(CONNECTOR)	
R137 R140 R141 R142	ERJ3GEYJ223 ERJ3GEYJ183	22K 18K	1	CN301	PSJS03Q36Z	(CONNECTOR) CONNECTOR, 3P	1
R137 R140 R141 R142	ERJ3GEYJ223	22K	1	CN301	PSJS03Q36Z		1
R137 R140 R141 R142 R143	ERJ3GEYJ223 ERJ3GEYJ183	22K 18K	1	CN301	PSJS03Q36Z		1
R137 R140 R141 R142 R143 R144	ERJ3GEYJ223 ERJ3GEYJ183 ERJ3GEYJ103	22K 18K 10K	1 1 1	CN301	PSJS03Q36Z		1